

Neue und interessante Milben  
aus dem Genfer Museum LIX.  
*Hauseripes hungarorum* gen. n., sp. n.  
and some other new Tarsonemina (Acari)  
from Sabah (East Malaysia)

by

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With 42 figures

ABSTRACT

**New and interesting mites from the Geneva Museum LIX. *Hauseripes hungarorum* gen. n., sp. n. and some other new Tarsonemina (Acari) from Sabah (East Malaysia).** — Seven Tarsonemina species extracted from soil samples are described as new to science, for one of them a new genus in the family *Scutacaridae* (***Hauseripes* gen. n.**) is erected.

Dr. B. Hauser, curator at the Museum d'Histoire naturelle, Geneva, has set, during his collecting trips to Sabah (Borneo), the main aim to explore the heretofore scarcely known terricolous mite fauna. For this purpose he collected and extracted in Berlese and Moczarsky-Winkler extractors some soil, moss and other samples, which indeed prove the presence of a very rich soil mite fauna in that region.

The material, which we had the opportunity to study, included also among other mite groups some Tarsonemina species. This group was almost unknown in the entire Oriental Region, thus, it is not surprising, that the species studied so far are new to science.

The descriptions of seven new species are given, and for one of them a new genus (*Hauseripes hungarorum* gen. et sp. n.) is established.

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Among the other new species particular attention should be paid to one of the genus *Coronipes* Mahunka, 1972 (*C. hauseri* sp. n.). The type species of this genus was described from China [*C. samsinaki* Mahunka, 1966], a second species (*C. divergens* Mahunka, 1972) was found in New Guinea. Based on this third locality it may be already concluded, that this genus has a more limited distribution than usually known for other *Scutacaridae* genera. On the other hand the new *Allopygmephorus* Cross, 1965 species (*A. orientalis* sp. n.) proves the larger distribution and the good separation of this genus.

The examined species derive from the following localities:

- Sab-82/4: Sabah (Sandakan Residency): 15 milles (24 km) à l'ouest de Sandakan: Sepilok: "Kabili-Sepilok Forest Reserve" (KSFR), forêt (Lowland Dipterocarp Forest) près de l'"Orang-Utan Rehabilitation Station" (OURS), prélèvement de sol dans les angles formés par les contreforts de grands arbres, 30 m, 23.IV.1982 (B\*)
- Sab-82/7: Sabah (Sandakan Residency): Sepilok: KSFR, forêt (Secondary Lowland Forest) près du "Pond" (étang formant la réserve d'eau pour Sepilok), tamisage de feuilles mortes et de bois pourri, 23.IV.1982 (W\*\*)
- Sab-82/27: Sabah (Sandakan Residency): Sepilok: KSFR, forêt près de l'OURS, 30 m, tamisage de feuilles mortes et de bois pourri prélevés dans les angles formés par les contreforts de grands arbres, 3.V.1982 (W)
- Sab-82/33: Sabah (Sandakan Residency): Sepilok: KSFR, forêt près de l'OURS, région de la cabane ("Cottage"), prélèvement de sol dans la zone de transition vers la mangrove, 6.V.1982 (B)
- Sab-82/34: Sabah (Sandakan Residency): Sepilok: KSFR, forêt près de l'OURS, prélèvement de sol dans le pré autour du "Cottage" (ancienne plantation d'hévéas), 7.V.1982 (B)
- Sab-82/41: Sabah (Sandakan Residency): Sepilok: KSFR, forêt près du Pond, prélèvement de feuilles mortes, 10.V.1982 (B)
- Sab-82/43c: Sabah (Interior Residency): route de Kimanis, à 16 milles de Keningau, hélicoptère, tamisage en forêt brumeuse, 1380 m, 12.V.1982 (B à Genève)
- Sab-82/50: Sabah (Interior Residency): route de Kimanis, à 16 milles de Keningau, forêt secondaire entremêlée de bananiers, prélèvement de sol dans les angles formés par les contreforts d'un arbre mort, 1170 m, 13.V.1982 (B à Genève).

The authors are deeply indebted to Dr. B. Hauser for giving the opportunity to study this very rich and interesting material and also for his valuable help in the preparation of the manuscript.

#### PYGMEPHORIDAE

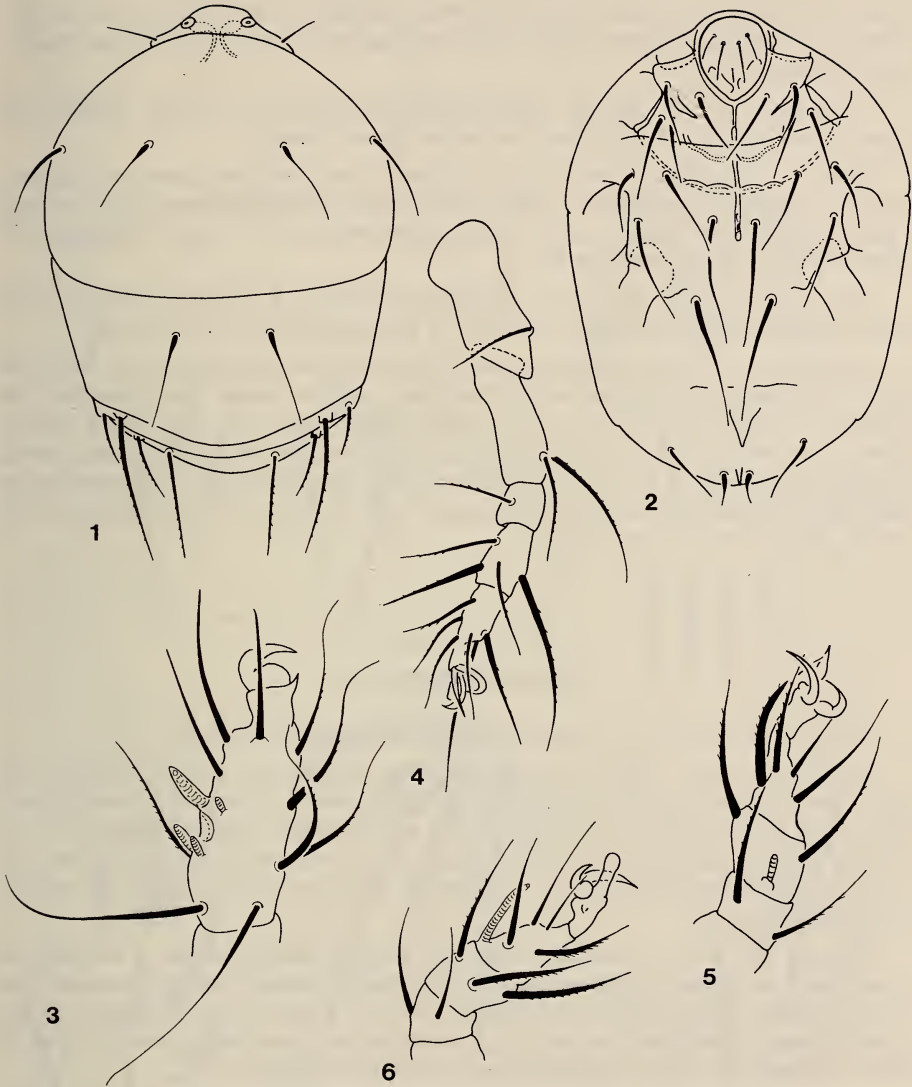
#### *Allopygmephorus orientalis* sp. n.

M e a s u r e m e n t s : Length: 146-161  $\mu$ m, width: 110-120  $\mu$ m.

D o r s a l s i d e (Fig. 1): Propodosoma small, its bigger part covered by the very large segment C in dorsal view. Peritrema round, well visible. Only one pair of

\*B: extraction par appareil BERLESE.

\*\*W: extraction par appareil WINKLER-MOCZARSKI.



FIGS 1-6.

*Allopygmephorus orientalis* sp. n. — 1: dorsal side; 2: ventral side; 3: leg I;  
4: leg IV; 5: leg II; 6: leg III.

exobothridial setae present, anterior setae reduced. Sensillus gradually thickened, curved between the first and second legs. Setae of segments *C* and *D* thin, but its basal end slightly dilated, bulbiform. Setae of segments *E-H* much stronger than preceding ones, but without basal thickening. Setae  $f_1$  the strongest and longest,  $e_1$  the shortest, setae  $h_1$  twice as long as  $h_2$ . Segment *Ps* with only two pairs of setae, inner pair slightly dilated basally, outer pair thin but long.

**Ventral side** (Fig. 2): Apodemes well developed, ap. 2 and ap. 3 waved. All epimeral setae strong and long, setae *4a* and *4b* equal in length.

**Legs**: Tibiotarsus of leg. I (Fig. 3) similar to that of the type species of the genus. All setae in ventral or ventrolateral position very long, with flagellate end. Claws on legs II and III (Figs 5, 6) nearly equal in length. Solenidium  $\omega_1$  very long. The form and chaetotaxy of leg IV as shown in Fig. 4.

**Material examined**: Holotype: Sab-82/27; 4 paratypes: from the same sample. Holotype and 2 paratypes: MHNG<sup>1</sup>; 2 paratypes (901-PT-83): HNHM<sup>2</sup>.

**Remarks**: The new species stands very near to *A. matthesi* (Krczal, 1959) and three other species of this genus (*A. brasiliensis* and *A. cunae*, both described by MAHUNKA in 1969 from Brazil, and *A. chinensis* Mahunka, 1975 from Hong Kong). However, the new species is very well distinguishable from the others by the very strong heterodactylia on legs II and III. A species described from Tanzania (*A. heterodactylus* Mahunka, 1973) has also heterodactylia on legs II and III, however, the solenidium of leg I wholly differs from the new species.

#### SCUTACARIDAE

#### *Coronipes hauseri* sp. n.

**Measurements**: Length: 232-297  $\mu\text{m}$ , width: 198-237  $\mu\text{m}$ .

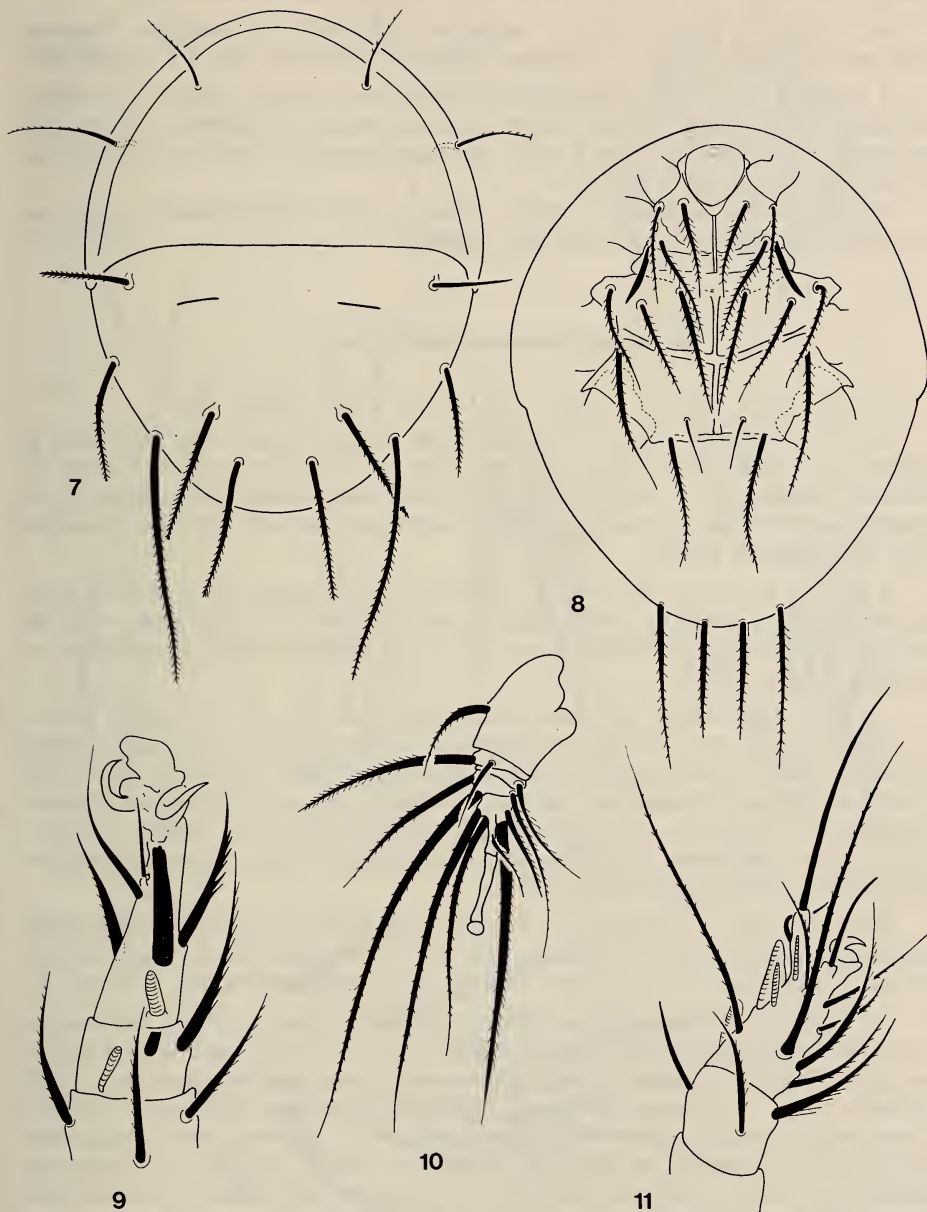
**Dorsal side** (Fig. 7): Free margin of clypeus very narrow, clypeus only slightly broader than segment *D*. Both pairs of clypeal setae thin, narrowed towards apex, nearly equal in length. Setae of segments *D-H* much stronger, slightly obtuse and with long cilia on their proximal part, with the exception of the extremely long  $h_2$  no great differences in length among these setae. Segment *Ps* with three pairs of setae,  $ps_2$  minute,  $ps_3$  longer than  $ps_1$ .

**Ventral side** (Fig. 8): Apodemes strongly developed, ap. 4 reaching to lateral margin of posterior epimeral plate. Ap. 1 slightly thinner, wavy. Epimeral setae long, thick, well ciliate. Setae *1a* and *1b* nearly equal in length, *3a* much longer than *3b*, *4b* much shorter than *4c* and not reaching to posterior margin of body. Posterior part of epimeral plates very broad, with sharp spur laterally, beside leg IV.

**Legs**: Claw of leg I (Fig. 11) small, beside long dorsal tubercle of seta *d*, also for the seta  $2d_3$  a smaller, but well separated tubercle present. Solenidium  $\omega_1$  very broad, basally dilated, obtuse, also  $\phi_1$  broadened.  $\omega_2$  and  $\phi_2$  narrow, much smaller. Seta

<sup>1</sup> MHNG = deposited in the Muséum d'Histoire naturelle, Genève.

<sup>2</sup> HNHM = deposited in the Hungarian Natural History Museum, Budapest, with the identification number of the specimens in the Collection of Arachnoidea.



FIGS 7-11.

*Coronipes hauseri* sp. n. — 7: dorsal side; 8: ventral side; 9: leg III; 10: leg IV; 11: leg I.

$ld'_1$  on legs II and III (Fig. 9) characteristic, similar to that of the other species of this genus. Pretarsus of leg IV (Fig. 10) without claws, pulvillus well developed.

**Material examined:** Holotype: Sab-82/43c; 20 paratypes: from the same sample. Holotype and 13 paratypes: MHNG; 7 paratypes (902-PT-83): HNHM.

**Remarks:** The new species stands near to the two known species of *Coronipes* Mahunka, 1972. However, its solenidium  $\omega_1$  is characteristically different from that of the others. The tibiotarsus of leg I of *C. samsinaki* (Mahunka, 1966) was unpublished, now we give a figure for it (Fig. 12).

We dedicate the new species to Dr. B. Hauser, curator of the Geneva Museum, our best friend, the collector of this very rich material.

### ***Imparipes (Imparipes) burckhardtii* sp. n.**

**Measurements:** Length: 165-180  $\mu\text{m}$ , width: 140-156  $\mu\text{m}$ .

**Dorsal side** (Fig. 13): Clypeus large, clypeal margin wide. Both pairs of clypeal setae straight, nearly equal in length. Among setae of segment *D-F* great differences in length exist, ratio  $f > d = h_1 > e > h_2$ . All setae scarcely ciliate. Setae of segment *Ps* much shorter,  $ps_1$  and  $ps_2$  equal in length,  $ps_3$  only half as long as preceding ones, but bulbiform basally.

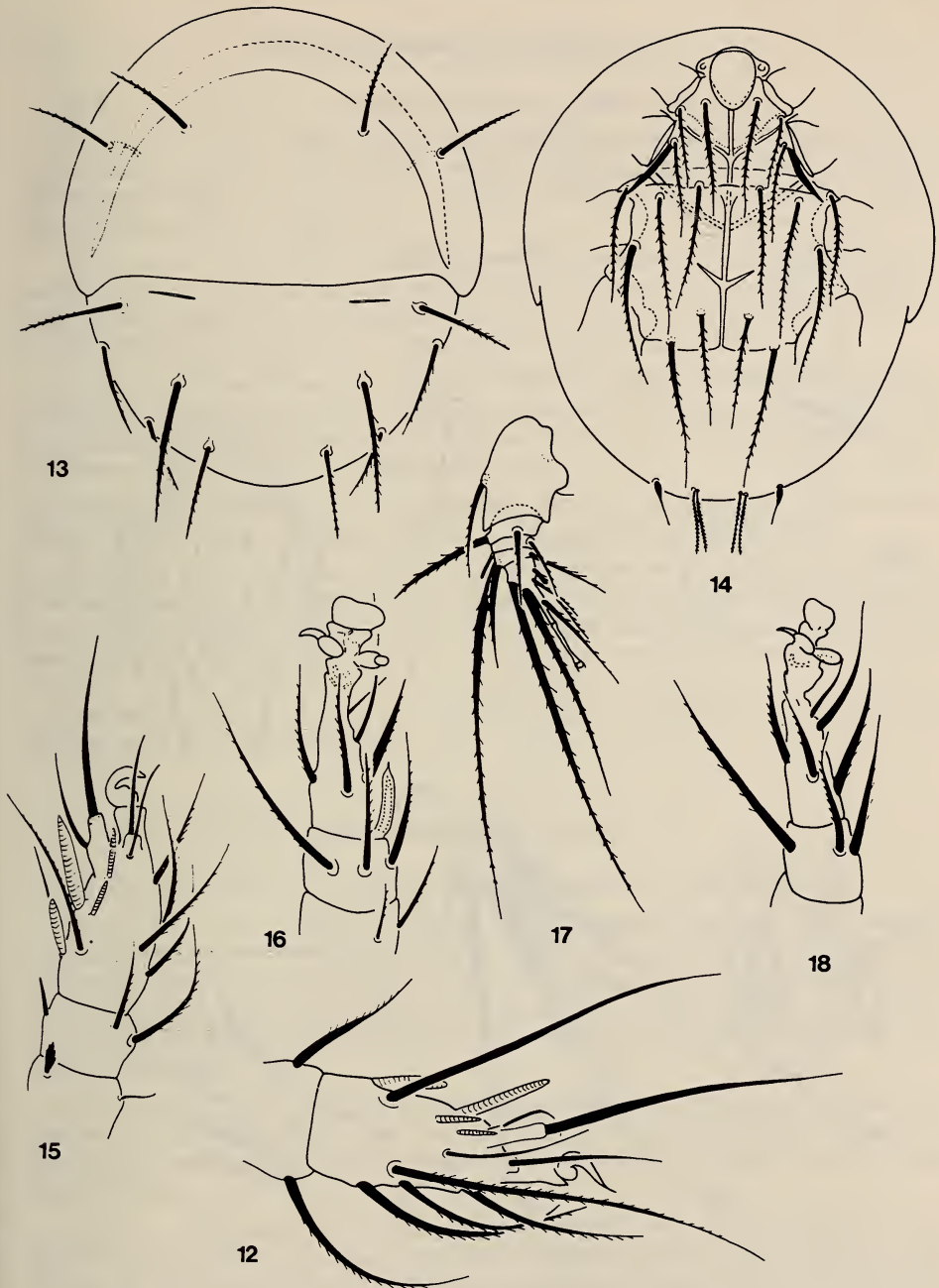
**Ventral side** (Fig. 14): All apodemes well developed, ap. 2 as thick as ap. sej. Ap. 4 short and standing at acute angle to sternal apodeme. Epimeral setae strong and long. Every seta reaching to insertion point of the seta behind it. Setae *4b* reaching to the posterior margin of body.

**Legs:** Tibiotarsus of leg I with comparatively small claw (Fig. 15). Dorsal tubercle of seta *d* very long, also seta  $2d_2''$  originating on it. Solenidium  $\omega_1$  very large, sharply pointed,  $\omega_2$  and  $\phi_2$  nearly equal in length,  $\phi_1$  greater than these. Solenidium  $\phi_1$  of tarsus of leg II with a much elongated and sharply pointed end, originating at the basis of tarsus. No spiniform, smooth setae on the tarsi of legs II, and III (Figs 16, 18). All joints of leg IV (Fig. 17) short, compressed. Solenidium of genu comparatively long. Tarsus and pretarsus also short, seta much longer than pretarsus.

**Material examined:** Holotype: Sab-82/41; 2 paratypes from the same sample; 1 paratype: Sab-82/4; 1 paratype: Sab-82/27; 1 paratype: Sab-82/33; 1 paratype: Sab-82/34. Holotype and 4 paratypes: MHNG; 2 paratypes (904-PT-83): HNHM.

**Remarks:** The new species belongs to a species-group, which is characterized by the two longer inner pairs of setae of segment *Ps* ( $ps_1$ ,  $ps_2$ ) and twice as long as third pair ( $ps_3$ ). This group consists of some species, mostly from tropical regions, as *I. topali* Mahunka, 1963, *I. enormus* Mahunka, 1970, *I. novaeguineae* Mahunka, 1972 and *I. malayensis* Mahunka, 1972. With the exception of *I. enormus*, these species have sharply pointed solenidia on their legs. However, setae *4a* and *4b* of *I. malayensis* originate very near to each other: setae *ps* of *I. topali* are much longer than in the new species, and *I. novaeguineae* has on its legs 4 much reduced pretarsi and shorter setae *4a-4b*. In addition the new species is well distinguished from all the others by its bulbiform setae  $ps_3$ .

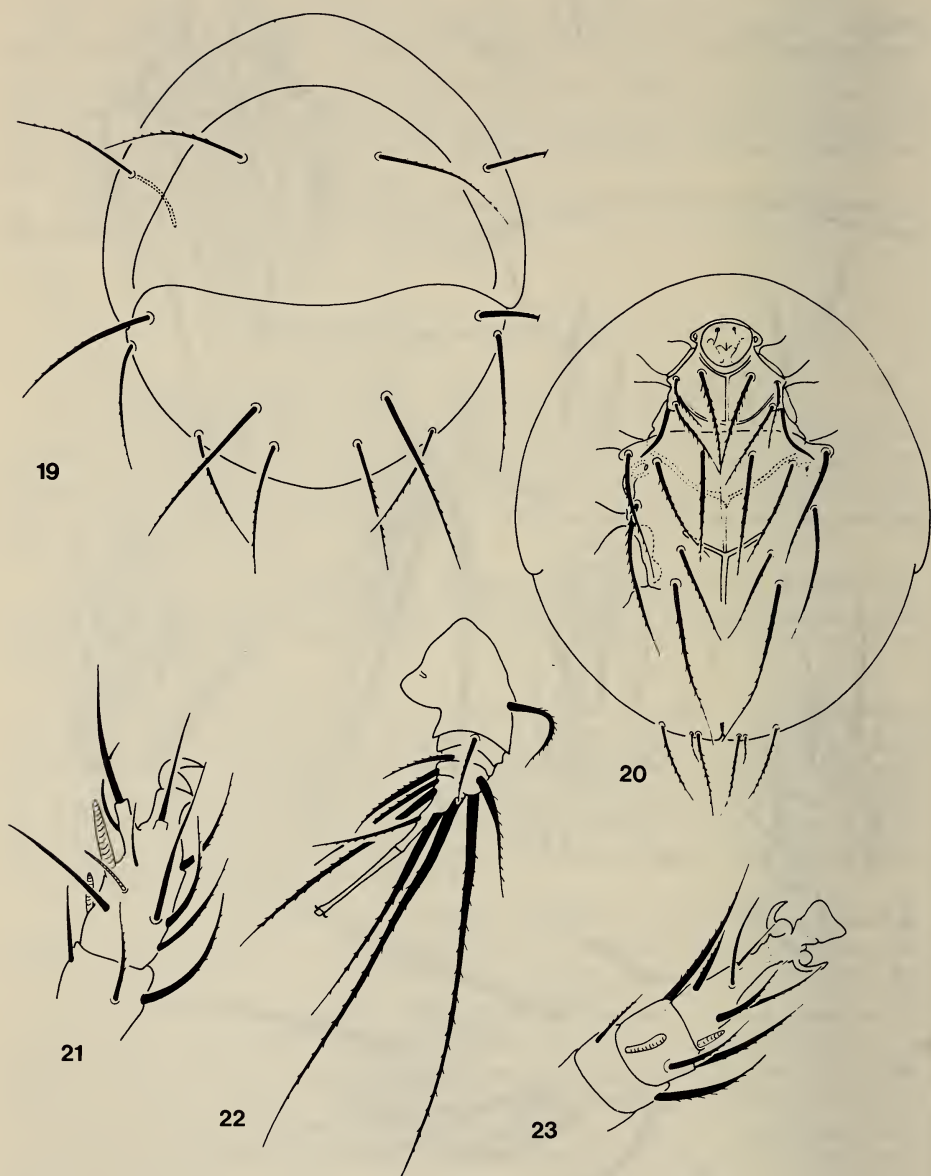
We dedicate the new species to the well known psyllidologist Dr. D. Burckhardt (Zürich, now Geneva), companion of Dr. B. Hauser in this collecting trip.



FIGS 12-18.

*Coronipes samsinaki* (Mahunka, 1966) — 12: leg. I.

*Imparipes (I.) burckhardti* sp. n. — 13: dorsal side; 14: ventral side; 15: leg I; 16: leg II; 17: leg IV; 18: leg III.



FIGS 19-23.

*Imparipes (I.) freudigeræ* sp. n. — 19: dorsal side; 20: ventral side; 21: leg I; 22: leg IV; 23: leg II.



**Imparipes (Imparipes) freudigerae** sp. n.

**M e a s u r e m e n t s :** Length: 136-178  $\mu\text{m}$ , width: 133-178  $\mu\text{m}$ .

**D o r s a l s i d e** (Fig. 19): Clypeus and clypeal margin large. Both pairs of clypeal setae long, thin, scarcely ciliate. Setae  $d_1$  similar in length but thicker. Ratio of dorsal setae of body:  $e_1 > f_1 > f_2 > d_1 = c_1 > e_2 > c_2$ . All finely and scarcely ciliate. Three pairs of setae arising on segment *Ps*.

**V e n t r a l s i d e** (Fig. 20): Apodemes well developed, ap. 4 ending halfway to margin of sternal plate. All epimeral setae — with the exception of setae *2b* — setiform, long, scarcely ciliate. Setae *3a* longer than *3b*, *4b* reaching to posterior margin of body. Setae *4a* originating far from each other, almost parallel with setae *4b*.

**L e g s :** Tibiotarsus of leg I (Fig. 21) normally developed. Solenidium  $\omega_1$  larger than dorsal tubercle of seta *d*,  $\omega_2$  missing. Solenidium  $\omega_1$  of tarsus of leg II (Fig. 23) short, originating basally. Tarsus and pretarsus of leg IV (Fig. 22) slightly shortened, seta  $Id'_2$  longer than pretarsus. Two minute claws visible.

**M a t e r i a l e x a m i n e d :** Holotype: Sab-82/27; 2 paratypes: from the same sample. Holotype and 1 paratype: MHNG; 1 paratype (906-PT-83): HNHM.

**R e m a r k s :** The new species is well characterized by setae *4a*, much removed from each other and the long seta  $Id'_2$  on legs IV. On this ground it stands comparatively near to *Imparipes indicus* Mahunka, 1971, however, the latter is distinguished from it by some important characters, e.g. the ratio of notogastral setae and the length of setae *4a* and *4b*.

We dedicate the new species to Mme I. Freudiger, preparator in Dr. B. Hauser's department of the Geneva Museum.

**Imparipes (Imparipes) horakae** sp. n.

**M e a s u r e m e n t s :** Length: 177-195  $\mu\text{m}$ , width: 177-187  $\mu\text{m}$ .

**D o r s a l s i d e** (Fig. 24): Clypeus very large, more than twice wider than all other dorsal segments. Clypeal margin also extremely wide, inner pair of setae emitted on its boundary line. Both pairs of clypeal setae very long, outer pairs with very long setal channel at their bases. All setae of segments *D-H* strong, ratio among them:  $e_1 > h_1 > d_1 > h_2 > f_1$ . Segment *Ps* with three pairs of setae,  $ps_2$  thin, short and smooth,  $ps_1$  and  $ps_2$  well ciliate.

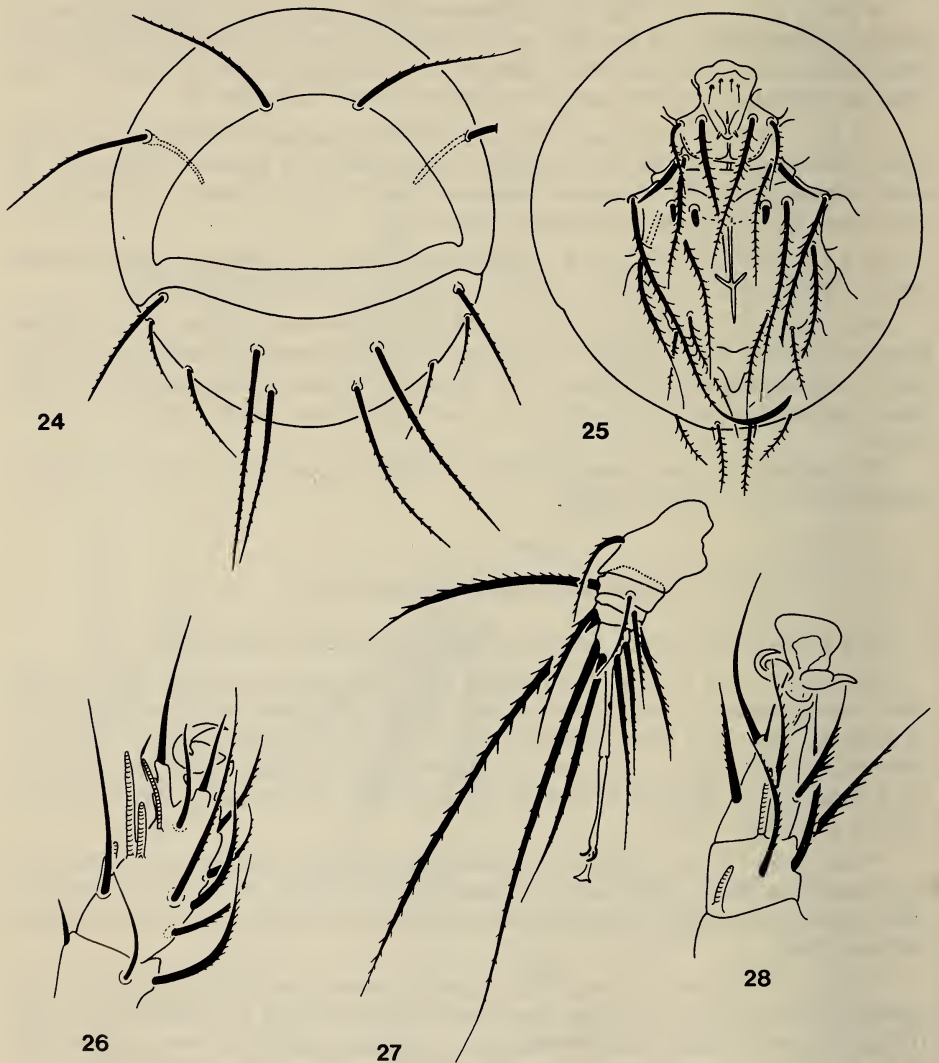
**V e n t r a l s i d e** (Fig. 25): Gnathosoma elongated, with very short setae and a transversal line basally. Some setae extremely long, as *1a*, *2a*, *3b*, *3c* and *4c*. Setae *3a* short, obtuse, guttiform, *3c* dilated proximally, with ensiform end. Cilia of setae very long and recurving.

**L e g s :** Tibiotarsus of leg I (Fig. 26) with normal claw. All four solenidia comparatively long and thin,  $\omega_2$  longer than dorsal tubercle of seta *d*. Ambulacrum of legs II (Fig. 28) and III large, wide, solenidium  $\omega_1$  originating basally. Tarsus and pretarsus of leg IV (Fig. 27) nearly equal in length, pulvillus very long, shaped like a tulip.

**M a t e r i a l e x a m i n e d :** Holotype: Sab-82/27; 4 paratypes: from the same sample; 1 paratype: Sab-82/7. Holotype and 3 paratypes: MHNG; 2 paratypes (903-PT-83): HNHM.

**R e m a r k s :** The new species is well characterized by the very long and apically dilated setae 3c. On this ground it is distinguished from all other *Imparipes* Berlese, 1913 species.

We dedicate the new species to the well known lepidopterologist Mrs Dr. M. Horak (Zürich, now Canberra), companion of Dr. B. Hauser in this collecting trip.



FIGS 24-28.

*Imparipes (I.) horakae* sp. n. — 24: dorsal side; 25: ventral side; 26: leg I; 27: leg IV; 28: leg II.

**Imparipes (Imparipes) mystax** sp. n.

**Measurements:** Length: 170-177  $\mu\text{m}$ , width: 144-158  $\mu\text{m}$ .

**Dorsal side** (Fig. 29): Clypeus large, its margin wide. Both pairs of setae thin, scarcely ciliate, all arising nearly on a transversal line. Setae  $d_1$  robust,  $f_1$  and  $h_1$  similar in shape, all well ciliate at their distal half. Setae  $e_1$  and  $h_2$  thinner than the preceding ones,  $e_1 > f_1$ . Setae  $ps_1$  and  $ps_3$  equal in length,  $ps_2$  only half as long as  $ps_1$ .

**Ventral side** (Fig. 30): Gnathosoma (Fig. 34) with one pair of very large solenidia of palpus. All epimeral setae strong, but not extremely long. Setae  $4c$  much longer than  $4a$ ,  $3b$  and  $4b$  equal in length.

**Legs:** Setae of tibiotarsus I (Fig. 31) comparatively short. Only three solenidia present,  $\omega_2$  missing.  $\omega_1$  solenidium of leg II (Fig. 32) arising basally, pulvillus of legs II and III small, sharply pointed. Tarsus and pretarsus of leg IV (Fig. 33) short, seta very long and strong. Solenidium  $\delta_1$  very long, thin, much longer than tarsus.

**Material examined:** Holotype: Sab-82/50; 17 paratypes: from the same sample; 3 paratypes: Sab-82/27. Holotype and 13 paratypes: MHNG; 7 paratypes (905-PT-83): HNHM.

**Remarks:** The new species is distinguished from all the heretofore known *Imparipes* species by the extremely long and great solenidia of palpus.

**Hauseripes** gen. n.

**Diagnosis:** Family *Scutacaridae*. Clypeus and clypeal margin very large, clypeus nearly twice as long as all the other dorsal segments together. Special ornamentation on clypeal margin squamose. Setae of segments *E-F* originating very near to each other, on the margin of segment. Sternal region modified anteriorly, strongly excavated, small gnathosoma sitting in them, not visible in ventral view. Epimeral region strongly chitinized. Tibiotarsus of leg I very large, setae  $Id_1T$ , and  $dT$  dilated proximally. Some setae of legs II and III also dilated. Tibiotarsus of leg IV elongated, with six setae.

**Type species:** *Hauseripes hungarorum* sp. n.

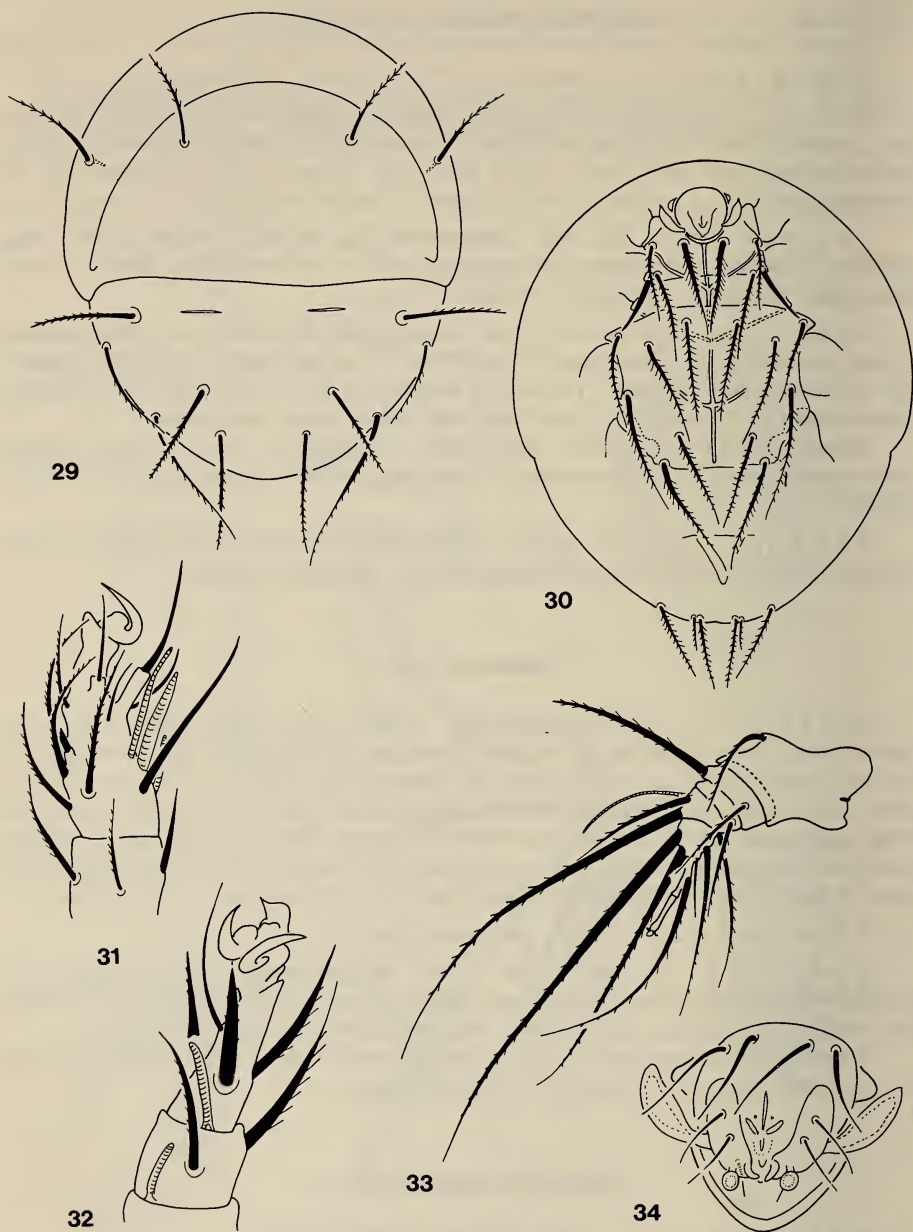
**Remarks:** The new taxon is well distinguishable from all genera of *Scutacarinae* by the extremely large clypeus, the withdrawn gnathosoma and by the shape and chaetotaxy of the legs. It may be a very specialized Scutacaroid taxon.

We dedicate the new genus to Dr. B. Hauser, our friend, for his intensive help and for our fifteen years of common work in soil zoology.

**Hauseripes hungarorum** sp. n.

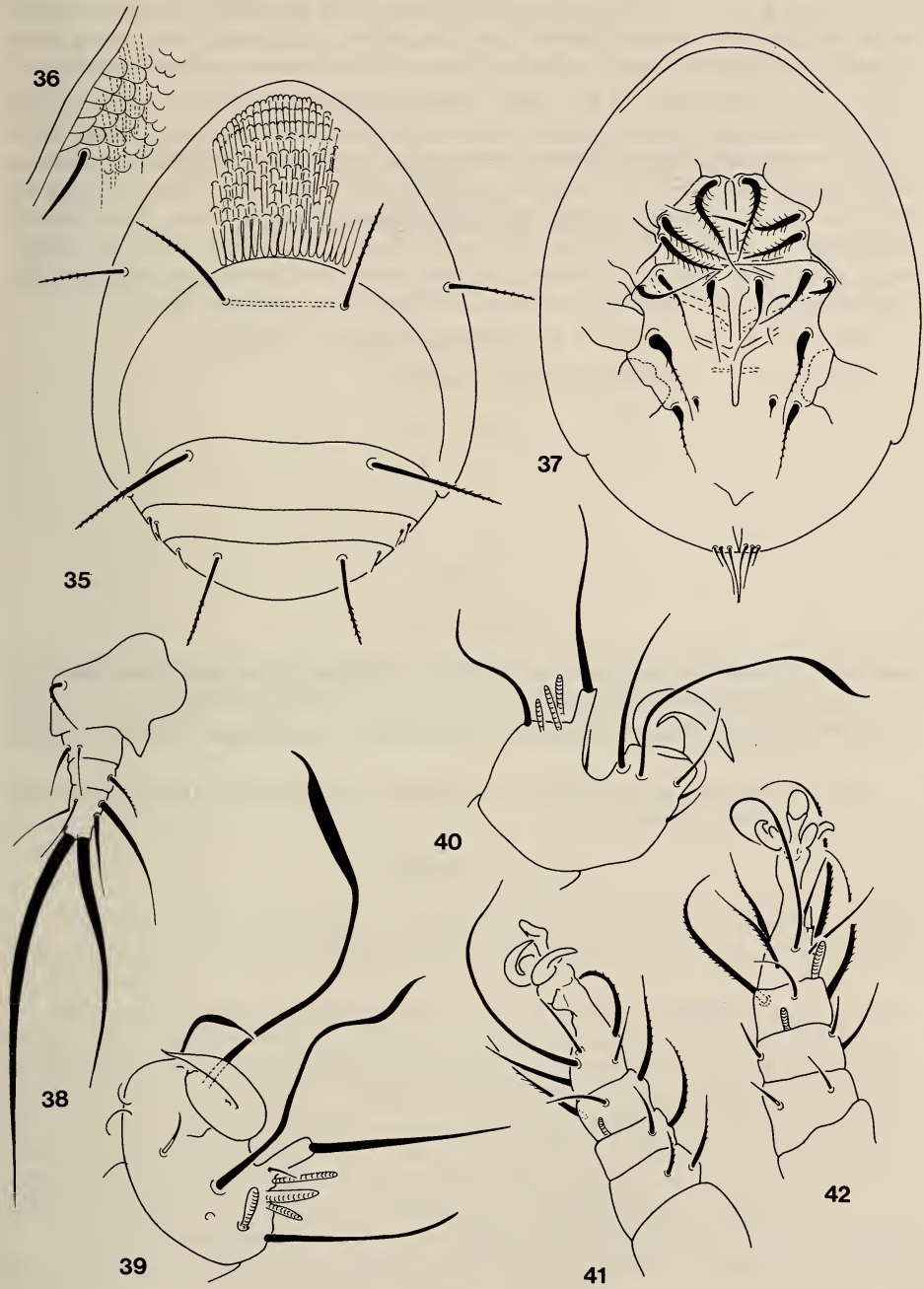
**Measurements:** Length: 220  $\mu\text{m}$ , width: 160  $\mu\text{m}$ .

**Dorsal side** (Fig. 35): Free margin of clypeus nearly as wide as clypeus. Ornamentation (Fig. 36) very characteristic: compact anteriorly, filelike, a small band marginally smooth. Four pairs of very strong setae dorsally, inner pair of clypeal setae stronger than outer one and standing behind it. Setae  $e_1$ ,  $f_1$  and  $h_2$  small, thin and simple. All three pairs of setae of segment *Ps* stand next to each other.



FIGS 29-34.

*Imparipes (I.) mystax* sp. n. — 29: dorsal side; 30: ventral side; 31: leg I;  
32: leg II; 33: leg IV; 34: gnathosoma.



FIGS 35-42.

*Hauseripes hungarorum* gen. n., sp. n. — 35: dorsal side; 36: ornamentation of clypeus; 37: ventral side; 38: leg IV; 39-40: leg I; 41: leg III; 42: leg II.

V e n t r a l s i d e (Fig. 37): Apodemes very thick and strong, extremely thick is the sternal apodeme. Sejugal apodeme dilated posteriorly. All epimeral setae strong, some of them strongly dilated basally. All setae ciliate, with the exception of the short setae *4a*.

L e g s : Tibiotarsus of leg I (Figs 39-40) very large, peduncle of claw long and strong, behind it the segment is strongly excavated. Basal tubercle of seta *d* long, on its basal part originating seta *Id*<sub>2</sub>' and solenidium  $\omega_2$ . Tibiotarsus with four solenidia  $\omega_1$  scarcely larger than the others. Some setae dilated like a flag. Legs II and III (Figs 42, 41) of normal Scutacaroid type, but some of the setae of tarsus very long, bent inwards. Solenidium  $\omega_1$  of tarsus II originating basally. Trochanter of leg IV (Fig. 38) dilated, with a strong spur basally. Tibiotarsus elongated, more than twice longer than its width. Two setae (*Iv*'', *Id*<sub>1</sub>') very long and strong, all the others small and thin.

M a t e r i a l e x a m i n e d : Holotype: Sab-82/27: MHNG.

R e m a r k s : See after the generic diagnosis.

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